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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

MAILED

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Application Number: 09/589,142
Filing Date: June 07, 2000
Appellant(s): MASUDA ET AL.

DEXTER T. CHANG
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/29/07 appealing from the Office action mailed 09/29/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,750,022	CURRY ET AL.	7-1973
5,987,069	FURUKAWA ET AL.	11-1999

6,385,773 SCHWARTZMAN ET AL. 5-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5 and 7 rejected under 103(a) as being unpatentable over **Curry et al (3,750,022)** in view of **Furukawa et al (5,987,069)**; and claim 6, rejected under 103(a) as unpatentable over Curry in view of Furukawa and further in view of **Schartzman et al (6,385,773).** This rejection is set forth in a prior Office Action, mailed on 09/29/06 and further repeated below).

As to claim 1, note the **Curry et al** reference figures 1, 3 and 5 disclose a system for minimizing upstream noise in a subscriber response cable television system and further disclose a system for reducing noise in a signal line, through which signals and downward signals are transmitted between a center (Head End "HE" 13) and terminals comprising:

Curry teaches a noise-reduction device (Line Control Circuit 'Line-CC' 27 and Noise Measuring Equipment 'Noise-ME' 25 'Line-CC/Noise-ME' 27/25 figs.1, 5, col. 5, lines 5-10 and col. 20, lines 12-34, Line-CC 27 includes Phantom subscriber Unit (PH-SubU) 29 and Noise-ME 25 "Line-CC/PH-Sub/Noise-ME 27/29/25", is located between HE 13 'center' and a plurality of Subscriber Terminals or Receivers/Transmitters (see fig.1 "From STS"), detects noise increase regarding the upstream "upward" signals on the signal line and generates a control signal indicative of the noise increase, and is directly triggered by the control signal to insert a tone signal into the downstream signals and instructs Switchable Attenuators (SA) 35 to control attenuation of the

upstream signals by an increased amount (col. 3, lines 34-41); note Line-CC 27 includes further includes Noise-ME 25, such as Noise-ME 25 at HE 13, col. 20, lines 12-34, and performs identical functions as NME 25 at HE 13, i.e., monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to LCC 27 and any noise exceeding a preselected threshold level causes NME 25 of PH-Sub 29 to generate a signal which causes the LCC 27 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference (col. 3, lines 31-42); responds to the tone signal sent from the noise-reduction device by boosting a transmission level of the upward signals by an amount compensating for attenuation of the upward signals by the Noise-ME 25. In other words, Line-CC/PH-Sub/Noise-ME 27/29/25 controls the gain as a function of frequency across the bandwidth of either or both of the upstream and downstream amplifiers in its locality. Curry further teaches reserving frequency band in the downstream communications for pilot tone for system tests or control purposes (col.3, line 51-col.4, line 26) and where that the Line-CC/PH-Sub/Noise-ME 27/29/25, monitors downstream digital transmissions (which includes the tone signal or waveform), extracts or recovers the encoded data or waveform and based on the extracted data, generates timing waveforms, applied this to the downstream signal to either un-attenuated or attenuate to a desired level before amplification (col.4, lines 40-col.5, lines 19, col.6, lines 47-55 and col.10, line 47-col.11, line 35)

Curry silent as to where the noise measuring device or Line-CC/PH-Sub/Noise-ME 27/29/25, provided between the center and the terminals, detects a noise increase

regarding the upward signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is further directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center

However, note the **Furukawa** reference figures 3-7, discloses a digital bidirectional communications transceiver "a noise measuring device," (col.3, line 49-col.4, line 7) provided between the center and the terminals, which detects a noise increase regarding the upstream and downstream signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center (col.4, line 31-col.5, line 4, col.11, lines 13-23, col.13, lines 5-30 and col.15, line 41-col.16, line 10).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Furukawa into the system of dynamically detect other noise signals, such as co-channel interference from neighboring upstream or downstream channels and attenuate the signals accordingly to provide an efficient system.

As to claim 2, Curry further discloses where Line-CC/Noise-ME 27/29 including a Noise-ME 25 "noise-level-check unit" which compares the signal component and a noise component and detects a noise increase based on the comparison or well known

signal to noise ration (col. 3, lines 31-41 and col. 9, lines 3-8) and Line-CC/PH-Sub/Noise-ME 27/29/25 further includes SA 35 "an attenuator" that attenuates the upstream signals by the increased amount if the Noise-ME 25 detects the increase, and transmits a tone signal via downward signals if Noise-ME 25 detects the noise increase (col. 3, lines 59-65 and col. 20, lines 15-30).

As to claim 3, the claimed noise-control-device including a tone-detection unit which detects the tone signal is met by Line-CC/PH-Sub/Noise-ME 27/29/25 which operates in response to instructions from LPC 16 to vary amplifier gain in the presence of noise. Command register 213 of Figure 10 registers commands from control signals (col. 3, lines 59-65); the claimed "variable amplifier to boost amplification of upward signals by an amount compensating for the attenuation of the upward signals by said attenuator" is met as noted above by variable amplifier 43 which increases gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 4, the claimed "tone or more noise reduction devices . . . are provided in one or more of a two-way amplification unit and splitter units provided between the center and the terminals" is met by phantom subscriber unit 29 and SA 35 being provided within line control unit 27 (fig. 3) and includes switching units 111, 113 . . . and filters 106, I 07 . . . as well as amplifiers 137 and 139 which constitute a "bi-directional amplification unit" as claimed.

As to claim 5, the claimed boosting transmission levels by an amount "compensating for a total attenuation of the upward signals of all of said one or more noise-reduction devices" is met as noted above by boosting signals using variable

amplifier 43 to increase gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 7, the obtaining of a level of a signal component is met as noted above by detecting a noise level with Noise-ME 25. As is well known and taught in col. 9, lines 3-8, a signal to noise ratio is determined during this process. As taught in col. 3, lines 59-65 an upper pilot tone may be inserted for testing or control purposes into the 116 to 120MHz band, meeting the claimed high frequency signal included within a frequency range and command register 213 (fig. 10), registers commands from control signals. Curry inherently teaches the claimed "subtraction unit" to obtaining a noise level from an upstream signal (col. 9-10), note the numerous mathematical operations including subtraction to obtain signal levels are performed. Noise-ME 25 also compares a noise level with a threshold or "reference level" and detects a noise increase based on the comparison (col. 3, lines 34-42).

Claim 6 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over **Curry et al. (3,750,022)** in view of **Furukawa et al (5,987,069)** as applied to claim 1 above, and further in view of **Schwartzman et al. (6,385,773).**

As claim 6, Curry further teaches where the noise-reduction device comprising a unit for obtaining a level of a signal component demodulated through coherent detection of the upward signals (col.3, lines 34-42), note line control circuit 27 includes a unit for sampling noise to monitor and measure noise in a conventional manner (col.9, lines 3-

8), a signal to noise ratio is determined during this process to determine a measure of noise.

Curry as modified by Furukawa, fails to teach obtaining a level of noise "through detection of noises observed on the signal line during a time period when no signal component is present."

However, note **Schwmzman** teaches a system and method for determining an optimum upstream frequency channel based on noise and bit-error-rate assessments and further teaches determining an intrinsic power level as a measure of the noise level at a time when no data or signal is being transmitted (col. 11, lines 38-51), comparing a signal level to the level of a noise component (fig. 4, step 408).

Therefore it would have been obvious for one skilled in the art at the time of the invention to modify the system of Curry as modified by Furukawa by monitoring a base noise measurement as taught by Schwartzman in order to ensure a high rate of data integrity (col. 7, lines 57-58).

(10) Response to Argument

As to Appellant's arguments that the rejection of claims 1-5 and 7 rejected under 103(a) as being unpatentable over **Curry et al** in view of **Furukawa**; and claim 6, rejected under 103(a) as unpatentable over Curry in view of Furukawa and further in view of **Schartzman,** is not well founded because Curry "...fail to disclose or suggest the features of the claimed invention..." that "...Examiner failed to establish a prima facie case of obviousness by failing to provide proper support for the combination of

references..." discusses the prior arts of record and further argues that "...Examiner improperly relied upon the PH-Sub 29 (phantom subscribers) described in Curry et al. as...the claimed noise-reduction device, provided between the center and the terminals..." etc., (see page 8 of 23+ of Appellant's Arguments).

In response, Examiner notes Appellant's arguments, however, the Examiner disagrees. Curry teaches a noise-reduction device (Line Control Circuit 'Line-CC' 27, Phantom Subscriber "PH-Sub" 29 and Noise Measuring Equipment 'Noise-ME' 25 'Line-CC/Noise-ME' 27/25 figs.1, 5, col. 5, lines 5-10 and col. 20, lines 12-34, Line-CC 27 houses PH-Sub 29 and Noise-ME 25 "Line-CC/PH-Sub/Noise-ME 27/29/25." The Line-CC/PH-Sub/Noise-ME 27/29/25 is located between HE 13 'center' and a plurality of Subscriber Terminals or Receivers/Transmitters (see fig.1 "From STS), detects a noise increase regarding the upstream "upward" signals on the signal line and generates a control signal indicative of the noise increase, and is directly triggered by the control signal to insert a tone signal into the downstream signals and instructs Switchable Attenuators (SA) 35 to control attenuation of the upstream signals by an increased amount (col. 3, lines 34-41). Curry teaches that the Noise-ME 25 may be located at the Line-CC/PH-Sub 27/29 (col. 20, lines 12-19) to respond to the tone signal sent from the noise-reduction device by boosting a transmission level of the upward signals by an amount compensating for attenuation of the upward signals by the Noise-ME 25 or in other words to control the gain as a function of frequency across the bandwidth of either or both of the upstream and downstream amplifiers in its locality. Line-CC/PH-Sub 27/29 with Noise-ME 25, performs identical functions as NME 25 at HE 13, i.e.,

monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to Line CC 27 and any noise exceeding a pre-selected threshold level causes NME 25 of Line-CC/PH-Sub 27/29 to generate a signal which causes the Lin CC 27 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference (col. 3, lines 31-42). Furthermore Curry teaches reserving frequency band in the downstream communications for pilot tone for system tests or control purposes (col.3, line 51-col.4, line 26) and teaches that Line-CC/PH-Sub/Noise-ME 27/29/25, monitors downstream digital transmissions (which includes the tone signal or waveform), extracts or recovers the encoded data or waveform and based on the extracted data, generates timing waveforms, applied this to the downstream signal to either un-attenuated or attenuate to a desired level before amplification (col.4, lines 40-col.5, lines 19, col.6, lines 47-55 and col.10, line 47-col.11, line 35). Curry silent as to where a noise measuring device, between the center and the STS, detects a noise increase regarding the upward signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center. However, **Furukawa** reference figures 3-7, discloses a digital bidirectional communications transceiver “a noise measuring device,” (col.3, line 49-col.4, line 7) between the center and the terminals, which detects a noise increase regarding the upstream and downstream signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal

indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center (col.4, line 31-col.5, line 4, col.11, lines 13-23, col.13, lines 5-30 and col.15, line 41-col.16, line 10). Hence the 103(a) rejection of claims 1-5 and 7 is proper meets all the claim limitations and should be sustained.

With respect to claim 6, Curry as modified by Furukawa, fails to teach obtaining a level of noise "through detection of noises observed on the signal line during a time period when no signal component is present." However, **Schwmzman** teaches a system and method which determines an optimum upstream frequency channel based on noise and bit-error-rate assessments and further teaches determining an intrinsic power level as a measure of the noise level at a time when no data or signal is being transmitted (col. 11, lines 38-51), comparing a signal level to the level of a noise component (fig. 4, step 408). Hence the 103(a) rejection of claim 6 is proper meets all the claim limitations and should be sustained.

With respect to Appellant's arguments that Examiner has failed to establish a prima facie case of obviousness and no motivation to combine references, Examiner maintains that, the test for obviousness is not whether the features of a secondary reference may be bodily incorporate into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. In this case all references are in the same field of endeavor, as such combining the references would be within the knowledge of

one of ordinary skill in the art, and the appropriate motivation was given. Hence the 103(a) rejection of the claims is proper, meets all the claim limitations and should be sustained.

(11) Related Proceeding(s) Appendix

None

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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